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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Yuki SASAKI et al. Group Art Unit: 1617

Application No.: 10/015,611 Examiner: G. Mitchell

Filed: December 17, 2001 Docket No.: 111482

For: RESIN POWDER FOR DERMATOLOGIC COMPOSITION, SKIN CLEANSING AGENT AND COSMETIC COMPOSITION USING THE POWDER, AND PREPARATION PROCESS OF THE POWDER

DECLARATION UNDER 37 C.F.R. §1.132

I, Hirotaka Matsuoka, a citizen of Japan, hereby declare and state:

1. I have a degree in Physical Chemistry which was conferred upon me by the Faculty of Engineering of Yokohama National University in Yokohama, Japan in 1983.

2. I have been employed by Fuji Xerox since April of 1983 and I have had a total of 21 years of work and research experience in research and development relating to fine particles.

3. I have reviewed the above-captioned U.S. Patent Application, the April 21, 2004 Office Action and Japanese Patent Application Publication JP 2001-151639 to Kenji Yasuda (hereafter "Yasuda").

4. I and/or those under my direct supervision and control have conducted the following tests: Dry resin powder compositions according to Yasuda and Example 1 of the above application were prepared, and solid powder foundation compositions were prepared according to Example 11 of the above application, using the resin powder compositions of Yasuda and Example 1, respectively.

5. The compositions were evaluated to determine shape factor SF1 and affinity to the skin.

6. The particles of Example 1 were prepared as follows:

7. In a flask, 540 g of styrene, 60 g of n-butyl acrylate, 12 g of acrylic acid and 12 g of dodecanethiol were mixed to obtain a solution. This solution was dispersed and emulsified in a solution of 13 g of sodium dodecylbenzene sulfonate in 555 g of deionized water. The mixture was stirred gradually for 10 minutes, after which 9 g of ammonium persulfate dissolved 42.8 g of deionized water was added, and the flask was purged with nitrogen. The reaction mixture was heated over an oil bath to 70°C while stirring. Emulsion polymerization was continued for 6 hours to obtain a resin dispersion.

8. In a round-bottom stainless flask, 520 g of the resin dispersion, 4.2 g of a 10 wt % aqueous solution of poly(aluminum chloride) and 38 g of 0.02M nitric acid were mixed and dispersed using a homogenizer ("ULTRA TURRAX T50", trade name; product of IKA Works). The dispersion was heated to 60°C, with stirring, over an oil bath. After 30 minutes, 200 g of the resin dispersion was gradually added. The temperature of the oil bath was raised to 90°C, for 7 hours, and agglomerated particles were obtained.

9. 52 g of 1N sodium hydroxide was then added to the flask, which was then hermetically sealed. The mixture was heated to 96°C with continued stirring. The agglomerated particles were fused by maintaining the mixture at 96°C for 7 hours. The fused particles were washed with deionized water. After vacuum lyophilization, the particles were sifted using a 20-μm mesh to yield a resin powder.

10. The resin powder composition of Yasuda was prepared by the following method:

11. 100 g of ion exchange water, 5 g of styrene, 0.1 g of dodecylbenzene sulfonic acid and 0.5 g of potassium persulfate were combined and placed into a glass autoclave. The

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autoclave was purged with nitrogen, the temperature was raised to 75°C, and the reaction was stirred for 2 hours. 70 g of styrene and 0.4 g of tertiary dodecyl mercaptan were added, and the reaction was continued for an additional 6 hours. The reaction product was washed with deionized water and dried to obtain a resin powder.

12. The shape factors SF1 of the resin powders of Example 1 and of Yasuda were measured using a LUZEX III image analyzer.

13. The solid powder foundation of Example 11 was prepared as follows:

14. 14 g of talc, 30 g of mica, 15 g of titanium oxide, 3 g of mica titanium, 1.6 g of yellow oxide, 0.2 g of black oxide and 30 g of the resin particles of Example 1 were mixed in a Henschel mixer. 5 g of squalane, 2.9 g of vaseline, 0.1 g of perfume and 0.2 g of antiseptic were added, and the resulting mixture was mixed to uniformity and then pulverized. A solid powder foundation was formed from the pulverized particles.

15. The Yasuda solid powder foundation was prepared as follows:

16. 14 g of talc, 30 g of mica, 15 g of titanium oxide, 3 g of mica titanium, 1.6 g of yellow oxide, 0.2 g of black oxide and 30 g of the resin particles of Yasuda were mixed in a Henschel mixer. 5 g of squalane, 2.9 g of vaseline, 0.1 g of perfume and 0.2 g of antiseptic were added, and the resulting mixture was mixed to uniformity and then pulverized. A solid powder foundation was formed from the pulverized particles.

17. The resin particles according to Yasuda and Example 1, and the cosmetic compositions according to Example 11 and the Yasuda foundation were applied to the inner arm skin of each of 10 individuals constituting a panel and an organoleptic test of affinity to the skin was conducted. Each individual on the panel specialized in cosmetics and had received lessons relating to basic makeup and cosmetic knowledge and had experience evaluating cosmetics and cosmetic raw materials. Prior to the testing, the terms used in the evaluation were standardized, and all evaluation conditions (coating method, coating surface,

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and environment) were standardized The results are shown in the Table below. In this organoleptic test, evaluation criteria were set as described below. The numeral indicated in the Table is an average value.

18. Affinity to the skin was evaluated by a scale of 1 to 5, depending on the degree of the dry touch feeling of the skin 30 minutes after application. On this scale, 5 means the composition has a dry touch feeling of the skin that remains without deterioration after application, 4 means the composition has a dry touch feeling of the skin that remains though inferior to that upon application, 3 means the composition has a dry touch feeling of the skin that lowers substantially, 2 means the composition has a dry touch feeling that slightly remains on the skin, and 1 means the dry touch feeling of the composition is lost.

19. Table

	Yasuda	Yasuda foundation	Example 1	Example 11
Shape Factor SF1 (standard deviation)	105 (1.73)		112 (2.03)	
Affinity to Skin	2.0	2.7	4.9	4.9

20. As can be seen from the Table, the resin powder composition of Yasuda has a shape factor SF1 of 105, less than 110, and can therefore be understood to have an almost truly spherical shape. Particles having truly spherical shapes have good spreadability on application, but have insufficient affinity to the skin. This is demonstrated by the "affinity to skin" of 2.0 (dry touch feeling that slightly remains on the skin 30 minutes after application) for the Yasuda powder, and by the 2.7 rating (dry touch feeling of the skin that lowers substantially 30 minutes after application) of the Yasuda foundation.

21. In contrast, the resin powder according to Example 1 of the specification has a shape factor SF1 of 112, according to the above experiments. This value is above 110. That is, particles having a shape factor SF1 above 110 are nearly but not truly spherical, and their

irregularity contributes to improved skin affinity. This can be seen from the "affinity to skin" rating of 4.9 (dry touch feeling of the skin that remains without deterioration 30 minutes after application) by the panel for both the Example 1 resin powder and the Example 11 solid powder foundation.

22. Therefore, it is apparent that the resin powder of Example 1 provides a more irregularly shaped particle when compared to the resin powder obtained by the method of Yasuda. In addition, the resin powder of Example 1 and the solid powder foundation of Example 11 provide markedly improved skin affinity when compared to the resin powder obtained by the Yasuda method and a solid powder foundation containing the Yasuda powder.

23. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Date: 10/22/04

Hirotaka Matsuoka

Hirotaka MATSUOKA

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